APPENDICES

APPENDIX A: SUMMARY OF ARIZONA WATER LAW AND MANAGEMENT

Water management in Arizona is a complex system of laws, rules and management authorities that differ for each type and source of water. Surface water regulations are distinct from those governing groundwater. Arizona's Colorado River water apportionment is governed by interstate compact, federal Congressional acts and U.S. Supreme Court decisions, referred to as the "Law of the River". Indian Water Rights Claims and Settlements are an important component in water management in Arizona and are discussed in Appendix D. Effluent is regulated under a law separate from those that pertain to surface water or groundwater. There are also laws that regulate underground water storage, water exchanges and dams. The Arizona Department of Water Resources (Department) administers water management and water rights but several Arizona governmental agencies, authorities and districts also affect aspects of water management and utilization.

Surface Water

Arizona has adopted the doctrine of prior appropriation to govern the use of surface water. This doctrine is based on the tenet of "first in time, first in right" which means that the person who first puts the water to a beneficial use acquires a right that is better than later appropriators of the water. Beneficial use is the "basis, measure and limit to the use of water" A.R.S. § 45-141(B). Prior to June 12, 1919, a person could acquire a surface water right simply by applying the water to a beneficial use and posting a notice of the appropriation at the point of diversion. On June 12, 1919, the Arizona surface water code was enacted. Known as the Public Water Code, this law requires that a person apply for and obtain a permit in order to appropriate surface water. Surface water is defined by statute as:

"Waters of all sources, flowing in streams, canyons, ravines or other natural channels, or in definite underground channels, whether perennial or intermittent, floodwaters, wastewater, or surplus water, and of lakes, ponds and springs on the surface." A.R.S. § 45-101.

Water may be appropriated for domestic, municipal, irrigation, stock watering, water power, recreation, wildlife, including fish, nonrecoverable water storage or mining uses. A.R.S. § 45-151(A). Water cannot be wasted, and if not used by the senior appropriator, it must be allowed to flow to the next senior appropriator. Non-diversionary appropriation of surface water for recreation and wildlife, including fish, use is recognized as a beneficial use. (Arizona Court of Appeals decision, *Phelps Dodge Corp v. Arizona Dep't of Water Res.*, 211 Ariz.146, 118 P.3d 1110 (App.2005)). These rights are referred to as "instream flow rights."

The Department administers the surface water permit system, including permits for instream flow. Permits are issued for a specific location and amount of water. Surface water rights for municipal, domestic or irrigation may be severed and transferred to a new location but only pursuant to statutory procedures. *A.R.S. § 45-172*.

Adjudication of Surface Water Rights

A general stream adjudication is a judicial proceeding in which the nature, extent, and relative priority of the rights of all persons to use water in a river system and source are determined. Two general stream adjudications are in progress involving the Gila River and Little Colorado River systems. The Gila River Adjudication includes the Salt, Gila, San Pedro, and Verde River watersheds, which include most of

Southeastern and Central Arizona. The Little Colorado River Adjudication includes the Little Colorado River system in northeastern Arizona.

The Department provides technical and administrative support to the adjudication court and special master, "in all aspects of the general adjudication with respect to which the director possesses hydrological or other expertise." *A.R.S. § 45-256(A).* Thousands of claimants and water users are joined in these cases that will result in the Superior Court issuing a comprehensive final decree of water rights for both the Gila and Little Colorado river systems.

Surface Water Decrees

Decreed surface water rights are those that have been determined through judicial action in a state or federal court. Major court determinations in Arizona include the Kent, Benson, Allison, Norviel, Concho and Globe Equity Decree.

The Kent Decree (*Hurley v. Abbott* 1910) established rights to the Salt and Verde rivers for diversion by downstream landowners based on diversions occurring at that time from Granite Reef and Joint Head diversion dams. These lands are generally the Salt River Project service area, along with portions of the Salt River Pima-Maricopa and Fort McDowell Indian reservations. Rights to the lower Agua Fria River, the Salt River and the Gila River below the confluence were determined in the *Benson v. Allison* Decree in 1917 for the Buckeye Irrigation District and a portion of the Gila River Indian Reservation. The Little Colorado River major decree is known the Norviel Decree, which is comprised of four judicial actions (between 1914 and 1923) determining rights of landowners to divert surface water in and around St. Johns to the headwaters of the Little Colorado River. The Concho Decree (1927) determined the relative rights to use surface water from Concho Springs and Concho creek in Apache County. In 1935 the U.S. District Court entered a consent decree (Globe Equity No. 59) for all diversions of the mainstem of the Gila River from confluence with the Salt River to the headwaters in New Mexico, including the Gila River and San Carlos Apache reservations, and non-Indian landowners below and above Coolidge Dam.

Indian Water Rights Claims and Settlements (See Appendix D)

Federal Reserved Rights

The United States Supreme Court's decision in Winters v. United States, 207 U.S. 564 (1908) established that when the federal government creates an Indian reservation, it impliedly reserves for the reservation a right to an amount of water sufficient to effectuate the purposes of the reservation (this doctrine is know as the "Winters Doctrine"). This concept of "federal reserved rights" has been claimed for other federal lands. Water rights claims have been filed in the Gila and Little Colorado River adjudications for national parks and monuments, national forests and for military bases.

Groundwater

The withdrawal, use and transportation of groundwater in the state are regulated under the Arizona Groundwater Code (Code), title 45, chapter 2, Arizona Revised Statutes. The Code has three primary goals: 1) to control groundwater overdraft in certain parts of the state; 2) to provide a means to allocate groundwater to meet the needs of the state; and 3) to augment groundwater supplies through the development of renewable water supplies. The Code established the Arizona Department of Water

Resources to administer the Code provisions.

The Code contains regulatory provisions applicable statewide, such as well drilling requirements and restrictions on groundwater transportation. It also contains provisions applicable only in certain designated areas of the state. The most intensive regulation of groundwater is in the five areas of the state designated as active management areas (AMAs), where the focus is on conservation and achievement of the AMA's management goal. Outside AMAs, persons may generally withdraw and use groundwater for any reasonable and beneficial use, subject to the groundwater transportation laws. . However, in areas designated as irrigation non-expansion areas (INAs), irrigation acreage expansion is prohibited and metering and reporting requirements apply to certain groundwater withdrawals.

Statewide Provisions

Statewide, all wells must be registered with the Department, wells must be drilled by a licensed well driller and new wells must comply with well construction standards. With certain exceptions, wells proposed to recover water stored or saved underground pursuant to a storage permit must comply with well spacing requirements.

Arizona has been divided into hydrologic groundwater basins and sub-basins within some of those basins. Statutes governing the transportation of groundwater within and between basins are designed to protect hydrologically distinct sources of groundwater supplies and the economies in rural areas by ensuring the groundwater is not depleted in one groundwater basin to benefit another. In general, groundwater cannot be transported between groundwater basins outside AMAs or from a groundwater basin outside an AMA into an AMA except for certain transfers specified in statute. A.R.S. §§ 45-544 and 45-551 through 45-555. Groundwater can legally be transported within a sub-basin, or within a basin that has not been divided into sub-basins, without payment of damages. A.R.S. § 45-541 and A.R.S. § 45-544. Groundwater may also be transported between sub-basins in the same basin but is subject to payment of damages, except under certain conditions in AMAs. A.R.S. §§ 45-542 through 45-545.

Active Management Areas

The magnitude of overdraft in certain areas of the state led to the designation of four initial AMAs: the Prescott, Phoenix, Pinal and Tucson AMAs. In 1994, a southern portion of the Tucson AMA was separately designated as the Santa Cruz AMA. The geographic boundaries of AMAs are defined by groundwater basins and subbasins. The Phoenix, Prescott and Tucson AMAs have a management goal of safe-yield by 2025. A.R.S. § 45-562(A). Safe-yield, as defined in the Code, means "a groundwater management goal which attempts to achieve and thereafter maintain a long-term balance between the annual amount of groundwater withdrawn in an active management area and the annual amount of natural and artificial groundwater recharge in the active management area." A.R.S. § 45-561(12). The management goal of the Pinal AMA is to allow development of non-irrigation uses and to preserve existing agricultural economies in the AMA for as long as feasible, consistent with the necessity to preserve future water supplies for non-irrigation uses. A.R.S. § 45-562(B) The goal of the Santa Cruz AMA is to maintain a safe-yield condition and prevent local water tables from experiencing long-term declines. A.R.S.§ 45-562(C).

General water management requirements within AMAs include:

- Groundwater rights and permits including metering, reporting and fees
- Well regulations
- Agricultural land development restrictions
- Groundwater management plans, which include agricultural, municipal and industrial water conservation programs, an augmentation program, groundwater quality assessment, and a water management assistance program
- Assured water supply program requirements for new subdivisions to have long-term dependable water supplies consistent with the management goal

In AMAs there are regulatory distinctions between wells equipped with a pump that can pump more than 35 gallons per minute (gpm), "non-exempt wells" and those that are equipped to pump less, "exempt wells." Withdrawal of groundwater from a non-exempt well requires a legal authority. The Groundwater Code established grandfathered groundwater rights, service area rights and groundwater withdrawal permits to provide legal withdrawal authority. With certain exceptions, drilling a non-exempt well requires a well drilling permit and is subject to well spacing requirements adopted by the Department to prevent unreasonably increasing damage to surrounding land and other water users. With a few exceptions, any person withdrawing groundwater from a non-exempt well in an AMA must meter and report water use annually to the Department and is assessed an annual withdrawal fee based on the amount withdrawn and beneficially used. Withdrawal fees are used to fund conservation and augmentation programs and Arizona Water Banking Authority activities (described below). Information from the annual water use reports is used to estimate the volume of groundwater withdrawals, water stored, and water recovered in an AMA. Water budgets are constructed from these data to determine the relationship between water supply and demand and to gage progress toward meeting AMA management goals.

A person may withdraw groundwater from an exempt well for a non-irrigation use without a groundwater right or permit. However, a right or permit is required to withdraw more than 10 acre-feet of groundwater per year for non-irrigation uses other than domestic or stockwatering if the exempt well was drilled on or after April 28, 1983. Except under specific circumstances, not more than one exempt well can be drilled to serve the same purpose at the same location. Additionally, beginning on January 1, 2006, with certain exceptions, an exempt well may not be drilled on land if any part of the land is within 100 feet of the operating water distribution system of a municipal provider with an assured water supply designation as shown on a digitized service area map provided to the Department by the municipal provider. A.R.S. § 45-454. These restrictions do not apply outside AMAs as long as the groundwater is put to reasonable and beneficial use.

In AMAs, the Code directs the Department to develop and implement water conservation requirements for the agricultural, municipal and industrial water use sectors in five consecutive management periods. These requirements are published in Management Plans for each AMA. A.R.S. §§ 45-564 through 45-568. The Code generally requires that each consecutive management plan contain more rigorous water conservation requirements. Management plans contain water use information and data and provide the framework for the day-to-day implementation of Code mandates and the Department policies for each AMA.

Within AMAs new subdivisions must demonstrate to the Department that a 100-year water supply exists before the local platting authority (typically City or County Planning Departments) can approve a plat

and before the Arizona Department of Real Estate will issue a public report, allowing the land to be sold. The demonstration criteria include physical, legal and continuous availability of water of adequate quality for 100-years, the groundwater use must be consistent with the AMA management goal and management plan conservation requirements, and the developer must have the financial capability to construct the necessary delivery, storage and treatment systems.

Outside Active Management Areas

Outside AMAs, groundwater may generally be withdrawn and used for any reasonable and beneficial use, subject to the statewide provisions described above. In areas designated as INAs, however, additional restrictions and requirements apply (see *Irrigation Non-Expansion Areas* section below.

In 1973, the Arizona Legislature enacted a statewide water adequacy statute as a consumer protection measure A.R.S. § 45-108. The law was passed in response to incidences of land fraud involving the sale of subdivision lots that were later found to have insufficient water supplies. This law required developers to obtain a determination from the State Land Department regarding the availability of water supplies prior to marketing new subdivision lots. When the Groundwater Code was adopted in 1980, the provisions of A.R.S. § 45-108 were amended and now apply only to subdivisions located outside AMAs. Under A.R.S. § 45-108, the Department must evaluate a developer's water supply plans and determine whether there is an adequate water supply, unless the development will be served by a water provider that has been designated by the director as having an adequate water supply for its service area. The developer must provide a copy of the Department's evaluation to the State Real Estate Commissioner for disclosure to the public if water supplies are determined to be inadequate. However, the Department's evaluation does not affect whether lots may be platted or sold. The Groundwater Code contains more rigorous provisions for new subdivisions inside the AMAs (see *Active Management Areas* section above).

Irrigation Non-Expansion Areas

There are three INAs: the Douglas INA, Joseph City INA and Harquahala INA. In an INA irrigation is restricted to lands that were irrigated during the five-year period preceding designation of the INA. A.R.S. § 45-434. This restriction is intended to protect the remaining groundwater supply. Groundwater withdrawals for agricultural irrigation on more than 10 acres and non-irrigation withdrawals of more than 10 acre-feet per year from a non-exempt well must be measured and annually reported to the Department. A.R.S. § 45-437. Statewide provisions and the provisions applicable outside AMAs mentioned above also apply within INAs.

Colorado River Water and the Central Arizona Project

The Colorado River is a critical water supply for Arizona. Use of Colorado River water is primarily under the jurisdiction of the federal government and is discussed in more detail in Appendix E. The development of Colorado River water law is described in the "Law of the River", which includes a number of Congressional acts, Supreme Court decisions and multi state compacts, as well as an international treaty**.**

The "Law of the River" includes: the 1922 Colorado River Compact, which apportioned 7.5 million acre-feet per year to the upper basin states and 7.5 million acre-feet per year to the lower basin states; the Boulder Canyon Project Act of 1928, which authorized construction of Hoover Dam and established the individual lower basin state apportionments; the 1944 Water Treaty with Mexico, which guaranteed

delivery to Mexico of 1.5 maf per year; the Upper Colorado River Compact of 1948 that divided the water apportioned to the Upper Basin between the five states with territory in the Upper Basin (including Arizona); the Colorado River Storage Project Act of 1956, which authorized several dams including Glen Canyon Dam in Arizona; the United States Supreme Court's decision in *Arizona v. California* (1964) that confirmed Arizona's apportionment under the Boulder Canyon Project Act and assigned any surplus; and the Colorado River Basin Project Act (CRBPA) of 1968 which authorized the Central Arizona Project (CAP). Ratification and text of the 1944 Lake Mead Delivery Contract, the Colorado River Compact and the Upper Colorado River Basin Contract are found at A.R.S. §§ 45-1301 to 1331.

Central Arizona Water Conservation District

Under provisions of the CRBPA, Arizona authorized the Central Arizona Water Conservation District (CAWCD) in 1971 to provide a means for Arizona to repay the federal government for the reimbursable costs of construction and to manage and operate the CAP. The CAP transports about half of Arizona's Colorado River water entitlement of 2.8 million acre-feet per year to central Arizona.

The CAP brings Colorado River water through a 336–mile system of aqueducts, pumping plants and siphons designed to carry 1.5 million acre-feet of water each year from Lake Havasu through Phoenix to south of Tucson. One reservoir, Lake Pleasant, located in the Phoenix AMA, provides storage. CAP delivers untreated water to cities and water utilities, industrial users, agricultural users and Indian communities.

CAWCD is a tax-levying public improvement district of the state responsible for system maintenance and operations, repayment obligations, and creating water resource management programs. Operations are managed by the General Manager and senior management team. The General Manager reports to the 15-member CAWCD Board of Directors who are popularly elected from the CAP three-county service area that includes Maricopa, Pima, and Pinal counties. Board members serve staggered six-year terms and are responsible for establishing policy. (See: www.cap-az.com).

Arizona Department of Water Resources

The director of the Department is authorized to "consult, advise and cooperate with the secretary of the interior of the United States" on behalf of the state of Arizona in several areas: the secretary's authorities under the Boulder Canyon Project Act; contracts for delivery of main stream Colorado river water for use within Arizona; powers and duties of the secretary under provisions of the 1944 treaty with Mexico; exercise by the secretary of any authority conferred by any legislation enacted by Congress; and in respect to the development, negotiation and execution of interstate banking agreements. (A.R.S.§ 45-107).

Arizona Water Banking Authority

The Arizona Water Banking Authority was created in 1996 to protect Arizona's Colorado River interests and to provide for interstate banking opportunities. (A.R.S. § 45-2401 et.seq.). The AWBA's goal is to firm water supplies for CAP municipal and industrial users or on-River users in times of shortages on the Colorado River or during CAP service interruptions, to help meet the management objectives of the Code and to assist in the settlement of Indian water rights claims. The AWBA stores Arizona's unused Colorado River allotment in groundwater basins and can enter into Storage and Interstate Agreements with entities in Nevada and California to store water in Arizona under certain conditions. Information

about the Water Banking Authority is found at www.awba.state.az.us.

Effluent

Effluent is defined in A.R.S. § 45-101(4) as "water that has been collected in a sanitary sewer for subsequent treatment in a facility that is regulated pursuant to title 49, chapter 2. Such water remains effluent until it acquires the characteristics of groundwater or surface water." The determination that effluent is a separate kind of water was a result of an Arizona Supreme Court Decision in 1989, *Arizona Pub. Serv. Co. v. Long*, 160 Ariz. 429, 773 P.2d 988 (1989), in which the court held that, until it is returned to the ground as surface water or groundwater, effluent is neither surface water nor groundwater, and therefore a city that produces effluent is free to use it without regard to the laws governing surface water and groundwater. Because the supply is not groundwater, if 100% effluent is used to serve a use within an AMA, the use is not subject to regulations applicable to groundwater, such as conservation requirements and groundwater transportation laws. AMA management plans contain a number of regulatory incentives for effluent use, which is considered a renewable water supply.

Underground Water Storage

Underground water storage or recharge is a means of storing excess renewable water supplies (surface water, including CAP and Colorado River water, and effluent) for future use. The goals of the recharge program are to promote the use of renewable water supplies by allowing for storage and recovery, to allow water to be "transported" by storing water in one location but recovering a like quantity elsewhere, to reduce overdraft by storing water to prevent further water level declines, to use underground storage to address seasonal water demands and to augment the water supply.

The Underground Water Storage and Recovery program was established in 1986 by the Arizona Legislature. In 1994, the Legislature enacted the Underground Water Storage, Savings, and Replenishment Act, which further defined the recharge program. Persons wishing to store and/or recover water anywhere in the state through the recharge program must apply to the Department for the appropriate permits. Permit holders are required to file annual reports with the Department in which they must report the volume of water stored and/or recovered pursuant to the permit. A.R.S. §§ 45-801.01 through 45-898.01. Recharge and recovery is an increasingly important tool in the management of Arizona's water supplies, especially in meeting the goals of the Code.

Water Exchanges

Flexibility in accessing water supplies through exchanges can provide water management benefits. The 1992 Water Exchange Act authorizes and regulates the exchange of any type of water for any type of water with certain exceptions. A.R.S. § 45-1001 et seq. "Water exchange" is defined as "a trade between one or more persons, or between one or more persons and one or more Indian communities, of any water for any other water, if each party has a right or claim to use the water it gives in trade. This definition applies whether or not water is traded in equal amounts or other consideration is included in the trade." A.R.S. § 45-1001(6). The Act establishes four classifications of exchanges with different conditions applicable to each class. Regardless of the classification, every exchange is subject to the "giver rule", which generally provides that a person who receives water pursuant to an exchange: (1) may use the water without holding a right to that water; and (2) may use the water only in the same manner in which the person had the right to use the water that the person gave in the trade. Currently, water exchanges are most common within the Phoenix AMA.

Dams and Reservoirs

The director of the Department is responsible for supervision of the safety of dams in Arizona. A.R.S. § 45-1202(A). The statutory authority for the tasks performed under the Dam Safety Program is found in A.R.S. § 45-105(B)(3). and 45-1201, et seq. Rules for dam safety procedures are found in the Arizona Administrative Code, R12-15-1201 et seq. Statutes and rules define a dam as an artificial barrier over 25 feet in height or capable of storing more than 50 acre-feet of water, with certain exceptions. Dams owned and/or operated by the Federal government are generally exempt from state jurisdiction. Major program areas are rehabilitation of unsafe dams, inspection and oversight of existing dams, review of applications to construct, enlarge, alter or remove a dam and construction monitoring. Another responsibility is to review and assistance to dam owners in development of Emergency Action Plans.

Water Replenishment Districts and Water Authorities

Central Arizona Groundwater Replenishment District

In 1993, CAWCD was given groundwater replenishment authority, within the Phoenix, Pinal and Tucson AMAs. The division of CAWCD responsible for replenishing groundwater is the Central Arizona Groundwater Replenishment District (CAGRD). Membership in the CAGRD provides a mechanism for developers and water providers to satisfy the management goal criteria of the Assured Water Supply (AWS) rules. The CAGRD must replenish (recharge) the amount of groundwater used by members in excess of that allowed by the AWS rules. Water used for replenishment is primarily excess CAP water.

Mohave County Water Authority

The Mohave County Water Authority was formed in 1994 pursuant to legislative authorization. A.R.S. §§ 45-2201 through 45-2283. The Authority is authorized to acquire Colorado River water allocations on behalf of its members. Members of the Authority must have had a Colorado River contract as of January 1, 1993. The legislation approved the transfer of the right to delivery of 18,500 acre-feet per year of Colorado River water from a member for allocation to municipal and industrial uses.

Water-Related Agencies and Commissions

Arizona Department of Environmental Quality

The Arizona Department of Environmental Quality's (ADEQ) mission is to protect and enhance public health and the environment in Arizona. Established by the Arizona Legislature in 1986 in response to growing concerns about groundwater quality, ADEQ administers a variety of programs to improve the health and welfare of Arizona's citizens and ensure the quality of Arizona's air, land and water resources meets healthful, regulatory standards.

ADEQ has a programmatic Water Quality division. Core responsibilities include pollution control, monitoring and assessment, compliance management, cleanups of contaminated soil and water, education, outreach and financial assistance and policy development. Its programs influence water supply planning and operations at the local level. Effluent reuse, recharge projects and discharge of water to aquifers or stream beds must meet water quality standards. The Water Quality Assurance Revolving Fund (WQARF) was established to investigate and cleanup hazardous waste sites in Arizona. The Department has certain responsibilities under this program, including the adoption of provisions in

its management plans and AWS rules to encourage the beneficial use of groundwater withdrawn pursuant to a remedial action project. (See: www.azdeq.gov)

Arizona Corporation Commission

The Arizona Corporation Commission (ACC) is a constitutionally formed commission with an elected 5- member board. It oversees the process of incorporating or registering companies to do business in the state, registers and oversees securities offerings and dealers and enforces railroad and pipeline safety. Among its responsibilities is regulatory authority over private water companies and private sewer companies. It regulates rates and authorizes curtailment tariffs that allow utilities to request that customers reduce water consumption when the demand is greater than the production. (See: www.cc.state.az.us)

Arizona Water Protection Fund Commission (See Appendix C)

APPENDIX B: RURAL WATERSHED PARTNERSHIPS ISSUE SUMMARY (2005)

Rural watershed partnership participants, projects, accomplishments and issues are summarized below and grouped by planning area. Some partnerships include more than one planning area as noted.

MULTI-PLANNING AREA - Eastern Plateau, Western Plateau and Central Highlands			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Coconino Plateau Water Advisory Council	Flagstaff Coconino County Williams Sedona Page Tusayan TNC Grand Canyon Trust Doney Park Water Co. Navajo Nation Hopi Tribe Havasupai Tribe Hualapai Tribe ADWR ADEQ State Land NRCD NAU USBoR USGS USFS BLM Grand Canyon National Park Glen Canyon NRA NRCS	• 4 categories of potential water augmentation projects have been identified along with their associated costs. • Groundwater study and conceptual model completed • Phase I Water Demand Study for Coconino Plateau • Growth Impacts Study • Western Navajo Pipeline Study • Development of study for importing C aquifer groundwater east of Flagstaff has been completed. • Flagstaff, Hopi and Navajo are exploring cooperative opportunities for developing C aquifer groundwater. • Flagstaff purchased Red Gap Ranch for possible future development of groundwater. • Hopi HSR initiated. • Conducting Water Appraisal Study to identify current & future demands and alternatives for meeting projected demands. • Developing numeric model	• Excessive growth throughout entire plateau region • Limited and deep groundwater supplies. • Drought sensitive surface water supplies of Williams, Flagstaff and others • Unsafe dam issues in Williams • Groundwater salinity issues in northeastern part of plateau • Numerous water haulers with few hauling stations that are sometimes cutoff during drought • Unable to get adequate water supply designation under current definition • Growth in Page with no means of additional supply • ESA issues with groundwater usage and impacts on perennial streams • Potential limitation of groundwater usage resulting from reserved groundwater rights of Indians • Uncertainty of Indian water right settlements (LCR & Colorado River) • Proposed San Juan Paiute reservation west of Flagstaff • Potential impacts on springs in Grand Canyon and also on supplies to Havasupai and Hualapai reservations • Access to water development on public lands • Limited groundwater data for entire region • Minor Arsenic issues in Woody Mtn. Well field (9-14 ppb) • Unregulated lot splits • Limited funding resources for planning, projects, infrastructure and studies

MULTI-PLANNING AREA - Eastern Plateau, Western Plateau and Central Highlands			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
			? Extremely high cost of water augmentation projects
Northern Arizona Municipal Water Users Association (NAMWUA)	Prescott Prescott Valley Flagstaff Williams Cottonwood Clarkdale Sedona Payson Chino Valley	? Projected water demands through 2040 have been identified ? A request for 70,000 acre-feet of CAP reallocation water has been submitted to ADWR for consideration.	? Limited supplies to meet projected demands ? ESA issues impacting potential ground and surface water supplies ? Limited funding resources for planning, projects, infrastructure and studies ? Competition from Phoenix/Tucson for CAP reallocation water ? Funding for Colorado River infrastructure ? Water quality issues in Verde Valley and Flagstaff ? Upper Basin/Lower Basin issues with Colorado River affect potential for use

EASTERN PLATEAU PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Little Colorado Watershed Coordinating Council (Formerly Little Colorado River Multi-Objective Management Partnership (LCRMOM))	Winslow Holbrook Navajo County NRCD/RCD NAU USBoR COE	? Development and Ecosystem Restoration Program study for the Montane Forest Regimes completed. ? Watershed reconnaissance study	? Potential impacts on groundwater from power plants ? Water quality issues involving arsenic and TDS ? Unresolved adjudication and Indian water rights settlements ? Limited groundwater data for entire region ? Invasive species (Tamarisk) ? ESA issues ? Drought impacts on surface water supplies ? Limited funding resources for planning, projects, infrastructure and studies
Navajo Nation	NDWR NTUA NDEQ NHA ADWR USBoR COE BIA HIS	? Survey of agricultural lands in Upper Basin ? Groundwater elevation survey of NTUA wells ? Water Quality ATLAS ? Navajo Drought Report ? Western Navajo Water Supply Study	? Lack of technical groundwater data ? Limited groundwater supplies to meet projected demands ? Water quality issues ? Prone to impacts from drought ? Unresolved water right claims to LCR & Colorado R. ? Upper Basin/Lower Basin issues with Colorado River ? Gallup to Window Rock Pipeline in jeopardy (financial, upper/lower basin issues, ESA and others)

EASTERN PLATEAU PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Show Low Creek Watershed Partnership	Show Low Lakeside Pinetop Navajo County Show Low Creek Irrigation District Local Citizenry ADWR AZ Game & Fish	? Groundwater elevations study ? GPS survey of agricultural lands ? Development of a water resources management plan initiated. ? Development of a water budget initiated.	? Drought impacts on surface water supplies and springs resulting in impacts on agriculture and cattle ranching ? Seasonal demands impacting peak demands ? Growth ? Unresolved adjudication and Indian water rights settlements ? Limited funding resources for planning, projects, infrastructure and studies
Silver Creek Watershed Partnership	Snowflake Taylor Holbrook Winslow Show Low Navajo County Silver Creek ID Show Low Creek Watershed Partnership ADWR NAU	? Silver Creek channel and riparian restoration study completed. ? Value Engineering Analysis of Unsafe Dams completed ? Silver Creek HSR ? Development of a water budget initiated.	? Limited groundwater data ? Potential impacts on groundwater system from Cholla Power plant ? Drought impacts on surface water supplies for agriculture ? Several high hazard unsafe dams ? Unresolved adjudication and Indian water rights settlements ? Perception of no real supply problem ? Water quality concerns in some areas (salinity) ? Limited funding resources for planning, projects, infrastructure and studies
Upper Little Colorado River Watershed Partnership	Springerville Eagar Greer Nutrioso Apache County Round Valley Irrigation District Local Citizens and Special Interest Groups ADWR ADEQ AZG&F NRCS/RCD USFS USBoR	? Aerial mapping survey and GIS coverage of the Little Colorado River and tributaries completed. ? Geomorphic and biological assessment of the LCR completed. ? Stream riparian restoration project ? Round Valley Irrigation Delivery System partially upgraded. ? Preliminary water budget completed ? Reconstruction of River Reservoir Dam completed. ? Interconnection of Springerville and Eagar's wastewater treatment facilities is being pursued.	? Limited groundwater data ? Potential impacts to the groundwater system from TEPCO generating station. ? Unresolved adjudication and Indian water rights settlements ? Proposed development in Greer and impacts on Little Colorado River ? Drought impacts on forage for grazing and surface water availability for agriculture ? Potential impacts on tourism due to drought ? Funding issues for water delivery infrastructure ? Political differences between Springerville and Eagar ? Perception of no real supply problem ? Limited funding resources for planning, projects, infrastructure and studies

SOUTHEASTERN ARIZONA PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Community Watershed Alliance/ Middle San Pedro Watershed	Cochise County Benson J-Six Mescal HOA St. David Irrigation District Pomerene Irrigation District Local Citizenry TNC ADWR NRCD ADEQ Coop Extension USGS USDA/ARS USGS USBoR	? Cursory groundwater study completed. ? AMA evaluation completed. ? Active agricultural fields identified and surveyed ? HSR completed ? 7-year comprehensive groundwater study and numeric model development initiated.	? Growth proposed in the Benson area ? Limited groundwater data ? Different perceptions of issues and goals within the area between Benson, irrigation districts, local citizenry, and the Upper San Pedro Partnership ? Unable to get principle players to the table to discuss water ? Unregulated lot splits ? New arsenic drinking water standard ? Limited funding resources for planning, projects, infrastructure and studies ? ESA issues ? Superfund site/poor quality groundwater conditions ? Potential impact of adjudication court subflow definition ? Limited funding resources for planning, projects, infrastructure and studies
Eagle Creek Partnership	Local ranchers & special interest groups ADWR	? Stream Reconnaissance study completed.	? Little or no groundwater data available ? Unresolved Indian water rights settlements ? Limited funding resources for planning, projects, infrastructure and studies
Gila Watershed Partnership	Safford Thatcher Pima Graham County Greenlee County Duncan ADWR AZG&F ADEQ Coop Extension BLM USFS USBoR NRCS/RCD	? Fluvial Geomorphology Study ? Water demand study ? Development of water resource management plan for the watershed area initiated ? Capped several saline wells contributing to the degradation in water quality of the Gila River ? Resin bush eradication project completed.	? Indian water rights settlement issues ? Poor quality surface and groundwater ? Growth associated with new Phelps Dodge mine and unregulated lot splits ? ESA issues throughout the watershed, critical habitat designation, and mitigation efforts ? Desire to maintain rural setting and especially maintaining agriculture at current or higher levels ? Lack of technical data on the groundwater system ? Invasive species issues impacting the surface water supply (tamarisk) ? Potential impacts of adjudication court subflow

SOUTHEASTERN ARIZONA PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
			definition ? New arsenic drinking water standard ? Drought impacts on surface water supplies, agriculture and cattle ranching ? Numerous high hazard unsafe dams in area ? Limited funding resources for planning, projects, infrastructure and studies ? Regular flooding in the Duncan-Virden area
Lower San Pedro Watershed Partnership-Redington NRCD	Redington Cascabel Local ranchers ADWR NRCD/RCD	? Watershed reconnaissance study completed.	? Unresolved adjudication and Indian water rights settlement issues ? Little or no groundwater data ? Opposition to government assistance in obtaining groundwater information ? Potential impacts of adjudication court subflow definition ? Limited funding resources for planning, projects, infrastructure and studies
Upper San Pedro Partnership	Sierra Vista Ft. Huachuca Cochise County Huachuca City Bisbee Tombstone TNC Huachuca Audubon Bella Vista Water ADWR ADEQ AACD NRCD State Land USF&W USFS BLM USDA/ARS USGS USBoR Coronado National Monument	? Comprehensive groundwater study ? Numeric groundwater model ? Phase I of Decision Support System model completed. ? San Pedro Riparian National Conservation Area Water Demand study ? Recharge study of detention basins ? Engineering design to transfer effluent from Huachuca City to Ft. Huachuca for treatment and recharge ? Partially funded transfer of treated effluent from new Bisbee wastewater treatment plant for use by Turquoise Valley golf course. ? Second iteration of water conservation & management plan	? Impacts on endangered species ? Federal mandate to achieve sustainability by 2011 ? Lawsuits from environmental groups ? Anticipated growth ? Potential impacts on riparian regime by continuation of current pumping ? Political obstacles from potential water augmentation projects ? Potential loss of Ft. Huachuca ? Interbasin transfer prohibition ? Potential impacts of adjudication court subflow definition ? Pumping impacts by Mexico on the San Pedro River and downstream users ? Unregulated lot splits ? Limited funding resources for planning, projects, infrastructure and studies

SOUTHEASTERN ARIZONA PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
		completed. ? Section 321 Report to Congress submitted annually. ? Funded more than $1,000,000 in conservation projects in watershed. ? Conduct public outreach and educational forums ? Appraisal study of five water augmentation projects initiated.	? High cost of augmentation projects

CENTRAL HIGHLANDS PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Northern Gila County Partnership- (Mogollon Highlands)	Payson Pine Strawberry Gila County Brooks Utilities Rim Trails WID Pine Strawberry WID Local citizens and special interests Tonto Apache Nation ADWR SRP USFS USBoR USGS	? Comprehensive groundwater study and conceptual model completed. ? Conducting Water Resources Management Appraisal Study to identify current & future demands and alternatives for meeting projected demands. ? Strategic Plan completed ? Feasibility study and cost estimates for Blue Ridge Reservoir pipeline ? Obtained approximately 3,500 ac-ft of surface water from Blue Ridge Reservoir. ? Development of a numeric groundwater model initiated.	? Limited water resources to meet current demands. ? Environmental, supply, treatment, transportation and financing costs associated with augmentation from Blue Ridge reservoir ? Numerous private water companies, Arizona Corporation Commission and Domestic Water Improvement District conflicts ? Interbasin transfer conflicts resulting from Payson's ability to pump from two different basins ? Seasonal demand issues; peaking problems ? County encouragement of growth in Pine and Strawberry ? Unresolved Indian water rights settlements ? Environmental issues pertaining to Fossil Creek ? Limited groundwater data for entire region ? Costs associated with hauling water ? Access to water development on public lands ? Infrastructure needs for private water companies ? Limited funding resources for planning, projects, infrastructure and studies
Upper Agua Fria Watershed Partnership	Mayer Black Canyon City Cordes Lakes Yavapai County Spring Valley Local Citizens ADWR ADEQ Cooperative Extension State Lands BLM/Agua Fria Nat. Monument USFS	? Watershed Reconnaissance studies ? Active recharge site identification study.	? Proposed growth in the Mayer, Bensch Ranch and Spring Valley areas ? Limited groundwater supplies ? Little or no groundwater data ? Groundwater and surface water supplies are very drought sensitive ? Potential water quality attributed to local septic systems and discharges from Prescott Valley ? Poorly constructed and maintained infrastructure in some areas ? Limited funding resources for planning, projects, infrastructure and studies

CENTRAL HIGHLANDS PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Upper and Middle Verde Watershed Groups (Yavapai County Water Advisory Council) (Verde Watershed Authority)	Prescott Prescott Valley Chino Valley Paulden Yavapai County Sedona Camp Verde Clarkdale Cottonwood Jerome 24 local special interest groups TNC Yavapai Apache Yavapai Prescott ADWR ADEQ SRP NRCD Cooperative Extension NAU USFS USGS USBoR USF&W	? Comprehensive groundwater study and conceptual model ? Study of geologic framework of aquifer units and groundwater flow paths of Verde River headwaters using aeromagnetic and gravity data. ? Verde River Watershed Study. ? Water educational forum conducted for WAC and public with ultimate goal of developing water management plan for Verde watershed area. ? Big Chino Subbasin Historical and Current Water Uses and Water Use Projectionsn study. ? Riparian demand study of Middle Verde ? Numeric groundwater model project initiated. ? Prescott AMA groundwater model. ? Study of groundwater flow paths for upper and middle Verde using stable isotopes. ? Prescott purchased JWK Ranch in Big Chino to import 8,717 ac-ft annually to Prescott and Prescott Valley ? Groundwater monitoring program in Big Chino initiated.	? Potential impacts resulting from the transfer of 8,717 ac-ft from Big Chino to Prescott and Prescott Valley ? 25,000 to 30,000 approved lots still outstanding in Prescott AMA ? Multiple developments currently under construction in the tri-city region of the AMA ? ESA issues associated with the Verde ? Proposed critical habitat area in Verde Valley for Willow Fly Catcher ? New Arsenic standards ? Pending Subflow decision ? Political and philosophical differences between AMA and Verde Valley ? Countywide growth and unregulated lot splits ? Indian water rights ? Yavapai Ranch Land exchange and Title II implementation (Verde Basin Partnership) ? Thousands of private domestic wells already permitted and more being requested daily ? Potential water quality impacts on groundwater system from the thousands of septic systems ? Potential development rumors of the CVCF Ranch in the Big Chino ? Limited funding resources for planning, projects, infrastructure and studies

WESTERN PLATEAU PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Arizona Strip Partnership (Currently not active)	Fredonia Kanab, Utah Colorado City Local citizens ADWR BLM National Park Service USBoR USFS USGS	? Kanab Creek seeps and springs study ? Watershed reconnaissance study ? Database development	? Brackish groundwater ? Inadequate surface water supplies for agriculture ? Drought impacts on surface and groundwater supplies ? Interstate stream issues ? Flooding due to operation of Kanab Creek by Kanab, Utah ? Little or no groundwater data available ? Limited funding resources for planning, projects, infrastructure and studies

UPPER COLORADO PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Northwest Arizona Watershed Council	Kingman Mohave County Dolan Springs Dolan Springs Water Co. Local citizens Hualapai Nation ADWR ADEQ Cooperative Extension BLM USFS USFS	? Groundwater reconnaissance survey of 3 basin area. ? Coordinated the clean-up of numerous wildcat dumpsites. ? Water Resource Management Plan for watershed area initiated. ? Comprehensive groundwater study and conceptual model initiated. ? Relative gravity survey of Detrital Basin.	? Limited groundwater supplies ? Huge growth projected for all three basins. ? Detrital Basin envisioned as bedroom community of Las Vegas with the completion of the bypass bridge over the Colorado River. ? Drought impact on private water suppliers, which impacts water haulers ? Potential for subsidence from proposed development ? Limited groundwater data. ? Potential impact from large industrial users in the Big Sandy basin ? Water quality concerns (hexavalent Chromium) ? Potential problems with developments proposed within the Colorado River accounting surface area ? Mohave County claims they will deny any subdivision that cannot obtain adequate water supply determination ? Limited funding resources for planning, projects, infrastructure and studies

UPPER COLORADO PLANNING AREA			
Watershed Partnership	**Primary Participants**	**Projects & Accomplishments**	**Issues**
Upper Bill Williams Partnership (Currently not active)	Skull Valley Peeples Valley Yarnell Yavapai County Local Ranchers ADWR	? Preliminary water budget developed.	? Concern about Prescott potentially transferring water from the basin ? Highly vulnerable to drought impacts on both surface and groundwater supplies ? Poor infrastructure for private water suppliers ? Limited financial capability to upgrade infrastructure ? Little or no groundwater data ? Cultural opposition to understanding status of water supply ? Growth ? Unregulated lot splits ? Limited groundwater supplies ? Limited funding resources for planning, projects, infrastructure and studies

OTHER AREAS OF INTEREST:

? A proposal is being developed to operate a pilot desalinization plant on the Navajo Reservation near the Cholla power plant. The C aquifer north of I-40 is brackish and there is a desire to determine whether or not it is feasible to clean the water for use by the southern Navajo communities of Jeddito, Leupp, and possibly Dilkon. ADWR has been requested to participate in this project to operate the plant in conjunction with the Navajo.

? Douglas Basin is experiencing significant groundwater declines. Groundwater pumping is estimated at about 55,000 acre-feet per year, an increase from 30,000 in five years. ADWR has initiated a two-year groundwater study with the USGS for the Douglas Basin.

? Willcox Basin has been averaging 140,000 acre-feet of annual groundwater mining for the past 10 years causing some concern. A watershed partnership for this area is currently being organized and ADWR has initiated a two-year groundwater study of the Willcox Basin with the USGS.

? A Cienega Creek watershed group has been meeting fairly regularly to evaluate water conditions.

APPENDIX C: ARIZONA WATER PROTECTION FUND

The Arizona Water Protection Fund (AWPF) was established in 1994 by the Arizona State Legislature (A.R.S. § 45-2101 et seq.) in order to provide a source of funding for "a coordinated effort for the restoration and conservation of the water resources of the state….designed to allow the people of this state to prosper while protecting and restoring this state's rivers and streams and associated riparian habitats, including fish and wildlife resources that are dependent on these important habitats".

Riparian areas provide wildlife habitat, support biodiversity and serve many essential functions including water quality improvement, water quantity improvement, flood control and recreation. These conditions provide economic benefits including increased property values.

The AWPF is administered by a 15-member Commission appointed by the Governor, the President of the Senate and the Speaker of the House of Representatives. The composition of the Commission is specified by statute (A.R.S. § 45-2103(A)) and is intended to represent a variety of land, water use and riparian issue perspectives. In addition there are two ex officio members, the director of the department of water resources and the state land commissioner.

The AWPF funds projects through a competitive grant process. Any person, agency or organization can apply. All projects must be in Arizona, be consistent with state water law and support the overall goals of the AWPF. Grants may be used to:

- Develop or implement capital projects or specific measures that directly maintain, enhance and restore rivers and streams and associated riparian resources;
- Acquire CAP water or effluent for the purpose of protecting or restoring rivers and streams;
- Develop, promote and implement water conservation programs outside of the five active management areas;
- Support research and data collection, compilation and analysis; or
- Fund man-made water resource projects if the project benefits a river or stream and creates or restores riparian habitat.

Monies for the AWPF are from three sources: 1) the Arizona State Legislature; 2) Central Arizona Project fees for each acre-foot of water sold to out-of-state CAP water lessees and purchasers, and; 3) private gifts, grants or donations. By statute, the AWPF is to receive $5 million annually from the legislature. The Commission encumbers all of the funds necessary to ensure the funding of multi-year projects. Money is disbursed on a reimbursable basis.

As of FY 2005, 111 projects had been funded outside of active management areas and 32 projects had been funded within AMAs. Table C-1 lists the grant number, project title and type of project, organized by planning area, AMA and groundwater basin. The table includes a map number, which refers to grant locations shown on Figure C-1.

Table C-1 Arizona Water Protection Fund grant summary.

ACTIVE MANAGEMENT AREA PLANNING AREA				
AMA	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Phoenix AMA	16	95-010	Assessment of the Role of Effluent Dominated Rivers in Supporting Riparian Functions	Research
Phoenix AMA	101	96-0005	Tres Rios River Management & Constructed Wetlands Project	Research
Phoenix AMA	171	97-038	Tres Rios Wetland Heavy Metal Bioavailability Design for Denitrification and Microbial Water Quality	Research
Phoenix AMA	180	97-042	Queen Creek Restoration and Management Plan	Research
Phoenix AMA	259	99-098	Rio Salado Habitat Restoration Project	Constructed Wetland & Revegetation
Phoenix AMA	278	00-114	The Papago Park Greenline Project	Exotic Species Control & Revegetation
Pinal AMA	12	95-008	Picacho Reservoir Riparian Enhancement Project	Habitat Protection
Prescott AMA	19	95-012	The Comprehensive Plan for the Watson Woods Riparian Preserve	Feasibility Study
Prescott AMA	118	96-0008	Watson Woods Vegetation Inventory	Research
Prescott AMA	119	96-0009	Watson Woods Riparian Preserve Visitor Management	Research
Prescott AMA	235	99-076	Watson Woods Preserve Herpetological Interpretive Guide and Checklist	Research
Prescott AMA	296	04-121	Lynx Creek Restoration	Stream Restoration
Prescott AMA	299	04-122	Watson Woods Riparian Preserve Restoration Feasibility Project	Feasibility Study

ACTIVE MANAGEMENT AREA PLANNING AREA				
AMA	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Tucson AMA	5	95-002	Partnership for Riparian Conservation in Northeastern Pima County	Research
Tucson AMA	26	95-007	High Plains Effluent Recharge Project	Wetland Restoration
Tucson AMA	69	95-023	Sabino Creek Riparian Ecosystem Protection Project	Research
Tucson AMA	90	96-0010	Rehabilitating the Puertocito Wash on the Buenos Aires National Wildlife Refuge	Stream Restoration
Tucson AMA	133	96-0026	Riparian Restoration on the San Xavier Indian Reservation Community	Habitat Restoration & Revegetation
Tucson AMA	161	97-031	Lincoln Park Riparian Habitat Project (f.k.a. Atturbury Wash Project)	Habitat Restoration
Tucson AMA	163	97-033	Proctor Vegetation Modification	Exotic Species Control
Tucson AMA	215	98-062	Partnership for Riparian Conservation in Northeastern Pima County II	Revegetation
Tucson AMA	231	99-072	Leopard Frog Habitat and Population Conservation at Buenos Aires National Wildlife Refuge	Habitat Restoration
Tucson AMA	239	99-080	Cortaro Mesquite Bosque	Habitat Restoration & Revegetation
Tucson AMA	246	99-087	Rillito Creek Habitat Restoration Project	Habitat Restoration & Revegetation
Tucson AMA	253	99-094	Santa Cruz River Park Extension	Habitat Restoration & Revegetation
Tucson AMA	279	00-115	Tucson Audubon Society North Simpson Farm Riparian Recovery Project	Revegetation

ACTIVE MANAGEMENT AREA PLANNING AREA				
AMA	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Tucson AMA	300	04-123	Tucson Audubon Society, Santa Cruz River Habitat Project, North Simpson Site, Phase 2	Revegetation
Tucson AMA	310	05-130	Riparian Restoration on the San Xavier District – Project Two	Revegetation
Santa Cruz AMA	80	95-024	Potrero Creek Wetland Characterization and Management Plan	Research
Santa Cruz AMA	178	97-041	Altar Valley Watershed Resource Assessment	Research
Santa Cruz AMA	265	00-103	Riparian Restoration on the Santa Cruz River – Santa Fe Ranch	Fencing & Revegetation
Santa Cruz AMA	314	05-132	Esperanza Ranch Riparian Restoration Project	Fencing & Revegetation

CENTRAL HIGHLANDS PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Agua Fria	**99**	96-0007	Ash Creek Riparian Protection Project	Stream Restoration
Agua Fria	**283**	03-117	Lynx Creek Restoration at Sediment Trap #2	Stream Restoration
Salt River	**65**	95-021	Lofer Cienega Restoration Project	Fencing & Habitat Protection
Salt River	**66**	95-022	Gooseberry Watershed Restoration Project	Stream Restoration
Salt River	**242**	99-083	Cherry Creek Enhancement Demonstration Project	Stream Restoration
Salt River	**306**	05-128	Canyon Creek Riparian Restoration Project, Reach 4-5	Fencing & Habitat Protection
Tonto Creek	**55**	95-019	Quantifying Anti-Erosion Traits of Streambank Graminoids	Research
Tonto Creek	**258**	99-097	Dakini Valley Riparian Project	Fencing & Revegetation
Upper Hassayampa	**247**	99-088	Wickenburg High School Stream Habitat Creation	Constructed Wetland Restoration
Verde River	**1**	95-001	Stable Isotope Assessment of Groundwater and Surface Water Interaction – Application to the Verde River Headwaters	Research
Verde River	**6**	95-003	Sycamore Creek Riparian Management Area	Fencing
Verde River	**10**	95-004	Road Reclamation to Improve Riparian Habitat Along the Hassayampa and Verde Rivers	Revegetation
Verde River	**28**	95-006	Critical Riparian Habitat Restoration Along a Perennial Reach of a Verde River Tributary	Stream Restoration

CENTRAL HIGHLANDS PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Verde River	**49**	95-017	Restoration of Fossil Creek Riparian Ecosystem	Research
Verde River	**160**	97-030	Walnut Creek Center for Education and Research – Biological Inventory	Research
Verde River	**190**	98-047	Upper Verde Adaptive Management Unit	Fencing
Verde River	**197**	98-050	Watershed Restoration of a High Elevation Riparian Community	Watershed & Stream Restoration
Verde River	**206**	98-055	Horseshoe Allotment: Verde Riparian Project II	Fencing & Upland Water Developments
Verde River	**208**	98-057	Upper Verde Valley Riparian Area Historical Analysis	Research
Verde River	**209**	98-058	Effects of Removal of Livestock Grazing on Riparian Vegetation and Channel Conditions of Selected Reaches of the Upper Verde River	Research
Verde River	**212**	98-059	Verde River Headwaters Riparian Restoration Demonstration Project	Channel Restoration
Verde River	**237**	99-078	Aquifer Framework and Ground-Water Flow Paths in Big and Little Chino Basins	Research
Verde River	**250**	99-091	Effects of Livestock Use Levels on Riparian Trees on the Verde River	Research
Verde River	**284**	03-118	Verde River Riparian Area Partnership Project	Exotic Species Control
Verde River	**292**	04-120	Verde River Headwaters 3-D Hydrogological Model Framework and Visualization	Research
Verde River	**315**	05-133	Verde Wild and Scenic River Fence Exclosure	Fencing

EASTERN PLATEAU PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Little Colorado River Plateau	**96**	96-0003	Hoxworth Springs Riparian Restoration Project	Stream Restoration
Little Colorado River Plateau	**103**	96-0022	Saffell Canyon and Murray Basin Watershed Restoration	Feasibility Study
Little Colorado River Plateau	**108**	96-0025	Tsaile Creek Watershed Restoration Demonstration	Watershed Restoration
Little Colorado River Plateau	**130**	96-0002	Completion Phase: Hi-Point Well Project	Fencing
Little Colorado River Plateau	**159**	97-029	Demonstration Enhancement of Pueblo Colorado Wash at Hubbell Trading Post	Stream Restoration & Revegetation
Little Colorado River Plateau	**168**	97-037	Talastima (Blue Canyon) Watershed Restoration Project	Exotic Species Control & Fencing
Little Colorado River Plateau	**189**	98-046	EC Bar Ranch Water Well Project	Fencing & Water Developments
Little Colorado River Plateau	**198**	98-051	Evaluation of Carex Species for Use in Riparian Restoration	Research
Little Colorado River Plateau	**223**	99-067	EC Bar Ranch Wildlife Drinker Project	Livestock & Wildlife Water Developments
Little Colorado River Plateau	**238**	99-079	Little Colorado River Riparian Restoration Project	Constructed Wetland & Revegetation

EASTERN PLATEAU PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Little Colorado River Plateau	**243**	99-084	Assessments of Riparian Zones in the Little Colorado River Watershed	Research
Little Colorado River Plateau	**248**	99-089	Town of Eager/Round Valley Water Users Association Pressure Irrigation Feasibility Study & Preliminary Design	Feasibility Study
Little Colorado River Plateau	**251**	99-092	Little Colorado River Enhancement Demonstration Project	Stream Restoration
Little Colorado River Plateau	**254**	99-095	Brown Creek Riparian Restoration	Fencing & Water Developments
Little Colorado River Plateau	**263**	00-101	Murray Basin and Saffell Canyon Watershed Restoration Project	Watershed Restoration
Little Colorado River Plateau	**266**	00-104	Continued Enhancement of Pueblo Colorado Wash at Hubbell Trading Post National Historic Site	Exotic Species Control & Stream Restoration
Little Colorado River Plateau	**267**	00-105	Hubbell Trading Post Riparian Restoration with Treated Effluent	Revegetation
Little Colorado River Plateau	**271**	00-108	Lake Mary Watershed Streams Restoration	Channel Restoration
Little Colorado River Plateau	**273**	00-110	Upper Fairchild Draw Riparian Restoration	Fencing & Revegetation

EASTERN PLATEAU PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Little Colorado River Plateau	**276**	00-112	Town of Eagar/Round Valley Water Users Association Pressure Irrigation Feasibility Study and Preliminary Design – Additional Mapping for Water Quality Improvements in the Watershed	Feasibility Study
Little Colorado River Plateau	**277**	00-113	Polacca Wash Grazing Management	Fencing & Exotic Species Control w/ Revegetation
Little Colorado River Plateau	**285**	03-119	Wet Meadows for Water Quality and Wildlife – A Riparian Restoration Project	Fencing & Habitat Protection
Little Colorado River Plateau	**302**	05-125	Wilkins' family Little Colorado River Riparian Enhancement Project	Stream Restoration
Little Colorado River Plateau	**304**	05-126	X Diamond Ranch LCR Riparian Enhancement Project	Stream Restoration
Little Colorado River Plateau	**305**	05-127	EC Bar Ranch Reach 8 Water Well and Drinker Project	Water Developments

LOWER COLORADO RIVER PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Parker	**92**	96-0016	‘Ahakhav Tribal Preserve	Habitat Restoration & Revegetation
Parker	**162**	97-032	‘Ahakhav Tribal Preserve – Deer Island Revegetation	Exotic Species Control & Revegetation
Yuma	**109**	96-0011	Lower Colorado River – Imperial Division Restoration	Wetland Restoration
Yuma	**115**	96-0023	Watershed Restoration at the Yuma Conservation Gardens	Watershed Restoration
Yuma	**301**	04-124	Yuma East Wetlands Riparian Revegetation Project	Exotic Species Control & Revegetation
Yuma	**317**	05-134	Quechan Indian Nation Yuma East Wetlands Restoration Project – Phase I	Exotic Species Control & Revegetation

SOUTHEASTERN ARIZONA PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Aravaipa Canyon	**113**	96-0014	Klondyke Tailings Response Strategy Analysis (RSA)	Research
Cienega Creek	**38**	95-016	Refinement of Geologic Model, Lower Cienega Basin, Pima County, Arizona	Research
Cienega Creek	**120**	96-0006	Hydrogeologic Investigation of Groundwater Movement and Sources of Base Flow to Sonoita Creek and Implementation of Long-Term Monitoring Program	Research
Cienega Creek	**135**	96-0020	Cienega Creek Stream Restoration	Stream Restoration & Revegetation
Cienega Creek	164	97-034	Oak Tree Gully Stabilization	Upland Channel Restoration
Cienega Creek	**193**	98-049	Empire/Cienega/Empirita Fencing Project	Fencing
Cienega Creek	**224**	99-068	Lower Cienega Creek Restoration Evaluation Project	Research
Cienega Creek	**249**	99-090	Redrock Riparian Improvement	Fencing & Water Developments
Douglas	**220**	98-066	Hay Mountain Watershed Rehabilitation	Watershed Restoration
Duncan Valley	**36**	95-014	Gila Box Riparian and Water Quality Improvement Project	Fencing & Upland Water Developments
Lower San Pedro	**165**	97-035	Watershed Improvement to Restore Riparian and Aquatic Habitat on the Muleshoe Ranch CMA	Fencing & Watershed Restoration
Lower San Pedro	**175**	97-040	Bingham Cienega Riparian Restoration Project	Revegetation
Lower San Pedro	**185**	97-044	San Pedro River Preserve Riparian Habitat Restoration Project	Habitat Restoration

SOUTHEASTERN ARIZONA PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Lower San Pedro	**225**	99-069	Riparian and Watershed Enhancements on the A7 Ranch – Lower San Pedro River	Fencing & Upland Water Developments
Lower San Pedro	**272**	00-109	Lower San Pedro Watershed Project	Feasibility Study
Lower San Pedro	**275**	00-111	Cooperative Grazing Management for Riparian Improvement on the San Pedro	Fencing & Upland Water Developments
Morenci	**236**	99-077	Blue Box Crossing	Channel Restoration
Morenci	**264**	00-102	Upper Eagle Creek Restoration on East Eagle Allotment: 4 Drag Ranch	Fencing & Upland Water Developments
Morenci	**308**	05-129	Georges Lake Riparian Restoration Project	Fencing & Habitat Protection
Safford	**100**	96-0012	Eagle Creek Watershed and Riparian Stabilization	Fencing & Upland Water Developments
Safford	**122**	96-0018	San Carlos Spring Protection Project	Fencing
Safford	**127**	96-0015	Abandonment of an Artesian Geothermal Well	Habitat Protection
Safford	**155**	97-028	Creation of a Reference Riparian Area in the Gila Valley – Discovery Park	Habitat Restoration
Safford	**166**	97-036	Stable Isotopes as Tracers of Water Quality Constituents in the Upper Gila River	Research
Safford	**200**	98-052	Tritium as a Tracer of Groundwater Sources and Movement in the Upper Gila River Drainage	Research
Safford	**203**	98-054	Fluvial Geomorphology Study and Demonstration Projects to Enhance and Restore Riparian Habitat on the Gila River from the New Mexico Border	Research
Safford	**245**	99-086	Abandonment of Gila Oil Syndicate Well #1	Habitat Protection

SOUTHEASTERN ARIZONA PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Safford	**261**	00-099	Gila Reference Riparian Area, Discovery Park	Revegetation
San Rafael	**188**	97-045	Santa Cruz Headwaters Project	Fencing & Upland Water Developments
San Rafael	**256**	99-096	Upper Santa Cruz Watershed Restoration	Fencing & Upland Water Developments
Upper San Pedro	**15**	95-009	Regeneration and Survivorship of Arizona Sycamore	Research
Upper San Pedro	**32**	95-005	Preservation of the San Pedro River Utilizing Effluent Recharge	Constructed Wetland
Upper San Pedro	**37**	95-015	San Pedro Riparian National Conservation Area Watershed Rehabilitation/ Restoration Project	Revegetation & Upland Channel Restoration
Upper San Pedro	54	95-018	Autecology and Restoration of *Sporobolus Wrightii* Riparian Grasslands in Southern Arizona	Research
Upper San Pedro	**61**	95-020	Teran Watershed Enhancement	Upland Channel Restoration
Upper San Pedro	**124**	96-0013	Happy Valley Riparian Area Restoration Project	Fencing
Upper San Pedro	**140**	96-0001	San Pedro Riparian National Conservation Area Watershed Protection and Improvement Project	Fencing
Upper San Pedro	**153**	97-027	Lyle Canyon Allotment Restoration Project	Fencing & Upland Water Developments
Upper San Pedro	**227**	99-070	Lyle Canyon Allotment Riparian Area Restoration Project --- Phase 2	Fencing & Upland Water Developments
Willcox	**281**	03-116	Cottonwood Creek Restoration	Upland Channel Restoration

UPPER COLORADO RIVER PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Big Sandy	**262**	00-100	Willow Creek Riparian Restoration Project	Revegetation
Bill Williams	**93**	96-0017	Big Sandy River Riparian Project	Fencing
Bill Williams	**151**	96-0021	Riparian Vegetation and Stream Channel Changes Associated with Water Management along the Bill Williams River	Research
Bill Williams	**244**	99-085	Kirkland Creek Watershed Resource Assessment	Feasibility Study
Bill Williams	**268**	00-106	Tres Alamos Dirt-Tanks-To-Aquatic-Habitat-Conversion	Fencing & Upland Channel Restoration
Lake Mojave	**232**	99-073	Colorado River Nature Center Backwater --- Phase 2	Feasibility Study

WESTERN PLATEAU PLANNING AREA				
Groundwater Basin	**Map Number**	**AWPF Grant #**	**Project Title**	**Project Category**
Coconino Plateau	**94**	96-0019	Response of Bebb Willow to Riparian Restoration	Stream Restoration
Coconino Plateau	**230**	99-071	Protection of Spring and Seep Resources of the South Rim, Grand Canyon National Park by Measuring Water Quality, Flow, and Associated Biota	Research
Coconino Plateau	**233**	99-074	Proposal to Inventory, Assess, and Recommend Recovery Priorities for Arizona Strip Springs, Seeps, and Natural Ponds	Research
Coconino Plateau	**252**	99-093	Coconino Plateau Regional Water Study	Research
Coconino Plateau	**313**	05-131	Management & Control of Tamarisk and Other Invasive Vegetation at Backcountry Seeps, Springs, and Tributaries in Grand Canyon National Park	Exotic Species Control
Kanab Plateau	**83**	96-0004	Hydrologic Investigation & Conservation Planning: Pipe Springs	Research
Kanab Plateau	**214**	98-061	Watershed Enhancement on the Antelope Allotment	Upland Water Developments
Kanab Plateau	**234**	99-075	Glen and Grand Canyon Riparian Restoration Project	Exotic Species Control & Revegetation

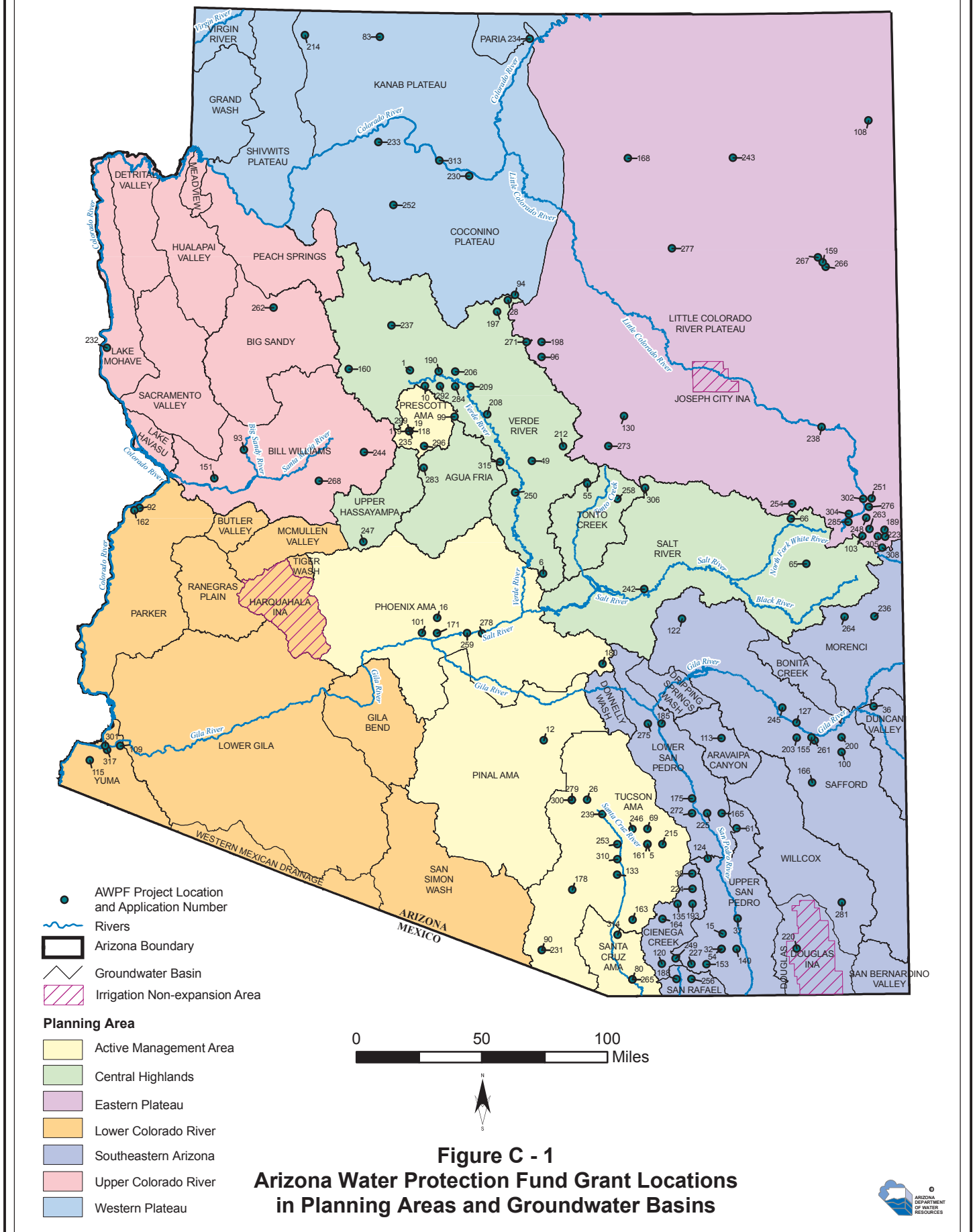

Figure C - 1
Arizona Water Protection Fund Grant Locations in Planning Areas and Groundwater Basins

APPENDIX D: INDIAN WATER RIGHTS CLAIMS AND SETTLEMENTS

In Arizona, as in most states, negotiation of Indian water rights claims has been litigation driven. Indian water right claims are based on "reserved water rights" for federal reservations established under the "Winters Doctrine." When the federal government established the Indian reservations it did not expressly claim associated water rights. In 1908, the U.S. Supreme Court in *Winters v. United States*, found that a federal reservation includes an amount of water necessary to fulfill the reservation's purpose. Priority dates are based on the date of the enactment of the treaty, act of Congress, or Executive Order establishing the reservation. In 1963, the Supreme Court further defined reserved water rights for Indian reservations by including the standard of practicably irrigable acreage as a method of quantifying the right.

Litigation to quantify Indian water rights claims is usually a lengthy and expensive process. Settlement of the tribal claims benefits private and public parties by providing the water certainty necessary to plan long-term economic development. Also, settlement may be less expensive than litigation. However, the greatest benefit of settlements may be the goodwill created by neighboring communities working together for Arizona's future.

When the settlement process begins, parties potentially impacted by the Indian water rights claims identify the sources of water necessary to satisfy the tribal needs. A federal negotiating team works with the parties to assure that federal requirements, including local cost contribution, are met. The Arizona Department of Water Resources (ADWR) participates in the settlement discussion, offering technical assistance and ensuring state water laws and policies are followed.

When local parties agree on a settlement, the issue is taken to the United States Congress for approval and funding. Generally, the congressional act ratifies the agreement among the parties, authorizes congressional appropriations, and may require a state contribution. The parties then finalize the implementing agreement, seek any necessary state appropriation, and seek approval of the court in either the Gila River General Stream Adjudication or the Little Colorado General Stream Adjudication.

Ak Chin Indian Community

By Congressional action in 1978 and 1984, the Ak Chin Indian Community was awarded an annual entitlement to 75,000 acre-feet (85,000 acre-feet in wet years) of water delivered via the Central Arizona Project (CAP) and other Colorado River water. Delivery of this water has commenced. In 1992, Congress amended the 1984 Act to authorize the Community to lease any unused CAP water to off-reservation users within the Tucson, Pinal and Phoenix Active Management Areas.

Tohono O'odham Nation

In 1982, the Southern Arizona Water Rights Settlement Act (SAWRSA) was enacted by Congress to address the water claims of the San Xavier and Shuck Toak Districts of the Tohono O'odham Nation. SAWRSA awarded the districts an annual entitlement to 37,800 acre-feet of CAP and 28,200 acre-feet of settlement water to be delivered by the Secretary of the Interior to the two districts. The districts may also pump a limited amount of groundwater. In addition to state and local financial contributions the City of Tucson contributed 28,200 acre-feet annually of effluent to be used by the Secretary to facilitate deliveries to the districts (through sale or exchange).

In December of 2004 the President signed into law P.L. 108-451, the Arizona Water Settlements Act. Title III of the Act amended the 1982 SAWRSA and provided a mechanism to implement the settlement. The amendment identified the source of the settlement water as CAP Non-Indian Agricultural priority water. The Nation may lease its CAP water within the CAP service area. State law has been amended to provide some additional protection to groundwater resources on the San Xaiver legislation, and to allow the Nation to store its CAP in an in lieu fashion. While the settlement has not yet been implemented, the parties are working to final approval before 2008. This will include dismissal of claims against the non-Indian parties in U.S. and State courts, and approval of the settlement by the State court.

The Tohono O'odham Nation's claims to water will not be completely satisfied until the water rights claims of the Sif Oidak District in Pinal County, commonly known as Chui Chu, are addressed. While that district currently has a contract for 8,000 acre-feet of CAP water, it has stated a need of nearly 100,000 acre-feet. The Nation has requested that a federal negotiating team be established so that negotiations can be commenced.

Salt River-Pima Maricopa Indian Community

In the Salt River-Pima Maricopa Indian Community Water Rights Settlement Act of 1988, Congress approved an agreement, which gave the Community an annual entitlement to 122,400 acre-feet of water plus storage rights behind Bartlett and modified Roosevelt Dams. The parties to the agreement were: Salt River Project, Roosevelt Water Conservation District, Roosevelt Irrigation District, Chandler, Glendale, Mesa, Phoenix, Scottsdale, Tempe, Gilbert, the Central Arizona Water Conservation District, the United States and the State of Arizona.

The sources of water for the Community under the settlement are from the Salt River, Verde River, groundwater and CAP water. The Community is allowed to pump groundwater, but must achieve safe-yield when the East Salt River sub-basin in the Phoenix Active Management Area does so. The Community has leased its 13,000 acre-feet CAP allocation to the Phoenix valley cities from 2000 to 2099. The Arizona State Legislature appropriated $3 million, which was added to $47 million from the United States for the Community's trust fund. This settlement was approved by the court in the Gila River General Stream Adjudication for incorporation into the final decree in that case.

Fort McDowell Indian Community

In 1990, Congress ratified an agreement between the Fort McDowell Indian Community (FMIC) and neighboring non-Indian communities, including Salt River Project, Roosevelt Water Conservation District, Chandler, Mesa, Phoenix, Scottsdale, Tempe, Gilbert, the Central Arizona Water Conservation District, the United States and the State of Arizona. Under that agreement, FMIC is provided an annual entitlement to 35,950 acre-feet of water from the Verde River and CAP. The 18,233 acre-feet of CAP in the water budget may be leased for 100 years or less off-reservation within Pima, Pinal, and Maricopa counties. A lease of 4,300 acre-feet to Phoenix has already been signed. This settlement also provides for a minimum stream flow on the Lower Verde River of 100 cfs. In accordance with the 1990 Act, a development fund was created with $23 million from the United States and with a $2 million appropriation by the Arizona State Legislature. The settlement was approved by the court in the Gila River General Stream Adjudication and will be incorporated into a final decree in that case.

San Carlos Apache Tribe

The water rights claims of the San Carlos Apache Tribe to the Salt River side of their reservation were settled through congressional enactment of the San Carlos Apache Tribe Settlement Act of 1992. The Tribe was awarded an annual entitlement to 71,435 acre-feet of water from the following sources: Salt River, Gila River, Black River and CAP. The 64,135 acre-feet of CAP water may be leased off-reservation within Pima, Maricopa, Pinal, Yavapai, Graham, and Greenlee counties. Groundwater may also be pumped from under the reservation.

The settlement agreement has been approved by the court in the Gila River General Stream Adjudication for incorporation into the final decree in that case. Parties include: Salt River Project, Roosevelt Water Conservation District, Phelps Dodge Corporation, the Buckeye Irrigation Company, the Buckeye Water Conservation and Drainage District, Chandler, Glendale, Globe, Mesa, Safford, Scottsdale, Tempe, Gilbert, Carefree, the Central Arizona Water Conservation District, the United States and the State of Arizona. This agreement includes a 100-year lease with the City of Scottsdale for a portion of the Tribe's CAP water.

In 1994, the Arizona State Legislature appropriated $3 million, which was added to $38.4 million from the United States, for the Tribe's development trust fund. The Adjudication Court approved the settlement in 1997. The water right claims of the San Carlos Apache Tribe to the Gila River side of the reservation will be the subject of separate discussions or litigation.

Yavapai-Prescott Indian Tribe

In 1994, Congress enacted the Yavapai-Prescott Indian Tribe Water Settlement Act. The Act settles the Tribe's water rights claims by: 1) confirming the Tribe's right to pump groundwater within the boundaries of the reservation, 2) providing for the relinquishment of the Tribe's CAP contract, the proceeds to be used for a water service contract with the City of Prescott, and 3) providing that the Tribe may divert a portion of the water from Granite Creek currently diverted by the Chino Valley Irrigation District.

The Act also provides authorization to the Tribe and the City of Prescott to market their CAP water to the City of Scottsdale, which has been completed. The Act required a state appropriation of $200,000, which was made in the 1994 session of the Arizona State Legislature and was added to the Tribe's CAP proceeds fund. The Gila River General Stream Adjudication approved this settlement for incorporation into the final decree in that case.

Gila River Indian Community

In December of 2004 the President signed into law P.L. 108-451, the Arizona Water Settlements Act. Title II of the Act provides approval of the Gila River Indian Water Settlement Agreement. It provides for a settlement water budget of an annual entitlement to 653,500 acre-feet from various sources: CAP allocations, the Gila, Verde and Salt rivers, effluent (through CAP exchange) and groundwater. It also provides a funding mechanism for on-reservation development of the Indian Community's farming operations. Among other provisions it provides leasing authority to the Indian Community of its CAP water as long as it is leased within Arizona. The parties to the settlement include many non-Indian neighbors: Salt River Project, Roosevelt Water Conservation District, San Carlos Irrigation and Drainage District, Hohokam Irrigation District, New Magma Irrigation District, Phoenix valley cities,

Central Arizona Irrigation and Drainage District, Maricopa-Stanfield Irrigation District, Gila Valley Irrigation District, Franklin Irrigation District, upper Gila valley towns and cities, the United States, Central Arizona Water Conservation District and the State of Arizona. The Indian and non-Indian water users who are parties in the *United States v. Gila Valley Irrigation District, et al., Globe Equity No. 59* (entered June 29, 1935), also known as the Globe Equity Consent Decree, have been in continuing litigation over the management and interpretation of the Decree since 1935. The Settlement Agreement and Title II of the Act include settlement of these difficult issues.

In 1997 the ADWR published a preliminary Hydrographic Survey Report on water uses and lands of the Gila River Indian Reservation. This report further defined the issues that led to a settlement of the adjudication litigation. The State has enacted legislation to better protect certain water resources of the Indian Community. All parties are working on the various implementation provisions, such as dismissal of the Indian Community claims in Federal and State courts, and approval of the Settlement by the State Court prior to 2008.

Little Colorado River Basin

The Navajo Nation, Hopi Tribe, Zuni Tribe and the San Juan Southern Paiute Tribe have been negotiating with non-Indian water users in the Little Colorado River basin, the State of Arizona and the federal government for several years in a settlement committee appointed by the Little Colorado General Stream Adjudication Court. The Arizona Department of Water Resources prepared a technical report for the parties and meetings have been held on a periodic basis. The court has issued a stay of the proceedings in 1994. Negotiations for all the tribes and non-Indian users broke down in 2000.

The non-Indian parties reached agreement with the Zuni Tribe over protection of its Zuni Heaven lands in Arizona, resulting in congressional approval in 2003. Talks, in a less formal setting, have continued with the Navajo Nation and Hopi Tribe about possible settlement of the Little Colorado River basin claims. Additionally, the Navajo Nation against the Secretary of the Interior filed a lawsuit in April of 2003 over the operation of the Colorado River. The Federal judge has entered a stay in that case to allow negotiations with the State of Arizona and non-Indian water users about possible Navajo Nation claims to the Colorado River.

APPENDIX E: FEDERAL AGENCIES AND LAWS

Federal agencies influence the use and management of water in Arizona. Federal agency authorities include the areas of flood control, water quality, and land and wildlife management. Many of the state's major water supply development projects were authorized and built by the federal government. Uses of the water from these projects are controlled by both federal and state laws. Summarized in Appendix E is a brief summary of key federal agencies and laws that affect water resource management in Arizona.

Key Federal Agencies

Bureau of Reclamation (BOR). The BOR administers the Colorado River Basin Project Act and contractual arrangements for the use of Colorado River Water. The BOR is responsible for construction of the major water supply development projects in Arizona (Hoover Dam and Power Plant, Glen Canyon Dam and Power Plant, Parker Dam and Power Plant, Davis Dam and Power Plant, the Salt River Project, Yuma Project and the Central Arizona Project). The BOR is also involved in regional planning activities, water conservation programs and water augmentation feasibility studies. www.usbr.gov

United States Geological Survey (USGS). The USGS gages streamflows, and water quality monitoring of surface water and groundwater. It conducts scientific analysis of hydrologic resources and produces reports on Arizona water use by sector and source. www.usgs.gov

U.S. Fish and Wildlife Service (USFWS). The USFWS manages federal wildlife refuges, administers the Endangered Species Act, reviews environmental impact statements and Biological Assessments and issues Biological Opinions. www.fws.gov

Bureau of Indian Affairs (BIA). The BIA is responsible for protecting Indian trust lands water rights. The agency has developed irrigation distribution systems in communities along the Colorado River and coordinated construction of Coolidge Dam with the Secretary of Interior. www.doi.gov/bureau-indian-affairs

Bureau of Land Management (BLM) and the National Park Service (NPS). These agencies manage over 17 million acres of land throughout the State. Management of these lands may involve federal reserved water rights, instream flow rights and land management activities that affect water runoff. The BLM manages the San Pedro Riparian National Conservation Area (SPRNCA). www.blm.gov, www.nps.gov

Natural Resource Conservation Service (NRCS). The NRCS plays an active role in managing and mitigating agricultural non-point source pollution. NRCS conservation specialists assist individual operators through technical assistance and cost-sharing programs that help users develop best management practices to reduce water quality and quantity impacts. The NRCS is an important participant in implementation of the Arizona Drought Plan, particularly the operation of the local area impact assessment groups. www.nrcs.usda.gov

U.S. Forest Service (USFS). The Forest Service manages watersheds through Forest Plans that include watershed management criteria to protect and enhance runoff. The Forest Service holds many surface water rights for various uses. www.fs.fed.us

U.S. Environmental Protection Agency (EPA). The EPA has federal oversight over the implementation of surface water and drinking water quality programs. It has a regulatory role in

governing some facilities that affect groundwater. This role involves oversight of state efforts regulating solid waste landfills, hazardous waste sites and underground storage tanks. The EPA also implements national programs on watershed management, toxic waste cleanup, and border-region environmental programs. www.epa.gov

U.S Army Corps of Engineers (COE). The COE conducts flood control studies and dam, levee and channelization projects to protect communities from flood damage. The COE regulates the placement of dredged or fill material into water of the U.S. (CWA, Section 404). www.usace.army.mil

Colorado River Management

The "Law of the River" as described briefly below, is a collection of federal and state laws, interstate compacts, Supreme Court decisions and international treaties that govern the operation and use of the Colorado River. In the Lower Colorado River Basin, the United States Secretary of the Interior (Secretary) is the Watermaster. Acting through the Bureau of Reclamation, the Secretary operates Colorado River dams and accounts for water use on an annual basis. Pursuant to Section V of the Boulder Canyon Project Act, the Secretary contracts with water users in the Lower Basin for water up to the total amount of each state's apportionment.

Colorado River Compact – 1922

In 1921, the seven Colorado River Basin states authorized the appointment of commissioners to negotiate a compact for the apportionment of the water supply of the Colorado River. Although the states were unable to negotiate an allocation of water for each state, an agreement was signed in November 1922, the Colorado River Compact (Compact) that divided the Colorado River Basin into the Upper Basin and the Lower Basin.

The Compact apportioned to the Upper Basin (Colorado, New Mexico, Utah, and a portion of Arizona) and to the Lower Basin (Arizona, California, and Nevada) the exclusive beneficial consumptive use of 7.5 million acre-feet of water to each basin annually. Because the Colorado River Basin includes a portion of Mexico, the Compact recognized Mexico's right to use River water. Water for this purpose was to be met from surplus water supplies in excess of the amounts apportioned to the Upper and Lower Basins. Any burden that might arise because of a water treaty with Mexico was to be shared equally by the two basins. The Compact recognized that the ability of the Upper Basin to meet the requirement to deliver 7.5 million acre-feet to the Lower Basin could be impacted by climatic factors, therefore the Compact only required the Upper Basin to restrict its use so that delivery to the Lower Basin would not be depleted below an aggregate of 75,000,000 acre-feet for any period of ten consecutive years.

Boulder Canyon Project Act - 1928

The Boulder Canyon Project Act (Project Act) authorized construction of the Hoover Dam and Power Plant and the All-American Canal. It also authorized Arizona, California and Nevada to enter into an agreement whereby the 7.5 million acre-feet of water apportioned to the Lower Basin by the Colorado River Compact would be apportioned as follows: to California, 4.4 million acre-feet per year; to Arizona, 2.8 million acre-feet per year; and to Nevada, 0.3 million acre-feet per year.

Mexican Treaty – 1945

In 1945, a treaty between the United States and Mexico involving waters of the Colorado, Rio Grande and Tijuana Rivers was enacted to address, among other things, a fixed entitlement for Mexico of 1.5 million acre-feet annually from the Colorado River. The Treaty also provided an additional 200,000 acre-feet in years of supply surplus. In years of extraordinary drought, Mexico's entitlement is to be reduced in the same proportion as consumptive uses in the U.S. are reduced.

Minute 242 was adopted and executed in 1973 in response to Mexico's concerns regarding the quality of Colorado River water being delivered to the Mexicali Valley. Minute 242 obligates the United States to implement measures that will maintain the salinity of the Colorado River waters delivered to Mexico at nearly the same quality as that diverted at Imperial Dam for use within the United States. The Colorado River Basin Salinity Control Act was signed into law on June 24, 1974, providing for the physical works necessary to implement Minute 242 without permanent loss of water to the Colorado River Basin states.

Upper Colorado River Basin Compact - 1948

This Compact divided the water apportioned to the Upper Basin by the Colorado River Compact between the five states with territory in the Upper Basin. Arizona was allocated 50,000 acre-feet per year with the remainder of the Upper Basin entitlement divided according to the following percentages: Colorado, 51.75; New Mexico, 11.25; Utah, 23.00; and Wyoming, 14.00.

Arizona v. California - 1964

On August 13, 1952, the State of Arizona filed a complaint with the U.S. Supreme Court against California and seven agencies within that state to resolve the contention by California that the Central Arizona Project should not be authorized. At California's insistence, the U.S. Congress would not authorize the Central Arizona Project until Arizona's right to the necessary Colorado River entitlement was clarified.

The Decree, handed down in 1964, confirmed that Congress had already apportioned, through the Boulder Canyon Project Act, the entitlement of water to the three Lower Basin states as follows: Arizona, 2.8 million acre-feet; California, 4.4 million acre-feet; and Nevada, 300,000 acre-feet. Any surplus above 7.5 million acre-feet was apportioned 50 percent to California and 50 percent to Arizona, except that Nevada was given the right to contract for 4 percent of the excess, which would come out of Arizona's share. The Decree also confirmed each of the Lower Basin state's entitlements to the flow of the tributaries within their boundaries, supporting Arizona's utilization of water from its in-state rivers, separate from its entitlement to its full 2.8 million acre-feet of Colorado River water.

The Decree left shortage allocation to the discretion of the Secretary after providing for satisfaction of present perfected rights in the order of their priority dates. These rights were defined as rights existing and used prior to the effective date of the Boulder Canyon Project Act.

Colorado River Basin Project Act - 1968

The Colorado River Basin Project Act on September 30, 1968 authorized construction of the Central Arizona Project and other water development projects in the Upper Basin. A significant concession was a provision that allowed existing California, Arizona, and Nevada Colorado River contractors to receive

a priority over the Central Arizona project in times when the useable supply from the River was inadequate to provide 7.5 million acre-feet to the Lower Basin states, with California's priority limited to its 4.4 million acre-foot entitlement.

The Act directed the Secretary to propose criteria for the "coordinated long-range operation of the reservoirs" in the Upper Basin with the operation of the reservoirs in the Lower Basin. To accomplish this, the Act required the development of an Annual Operating Plan, in consultation with representatives of the seven Basin states.

Federal Reserved Rights

In addition to the reserved water rights associated with Indian water claims under the "Winters" doctrine (described in Appendix D), federal reserved rights can be asserted on most federal, non-Indian lands. For example, surface water rights have been claimed in both the Gila River and Little Colorado River adjudications for national parks and monuments, military bases and national forests (Pearce, 2002). Federal reserved rights to groundwater have also been asserted. An Arizona Supreme Court Decision found that the federal reserved rights doctrine applied to groundwater as well as surface water. The decision found that a reserved right to groundwater could be found only where other waters are inadequate to accomplish the purpose of the reservation. *In Re: The General Adjudication of All Rights to Use Water in the Gila River System and Source*, 989 P.2d 739 (Ariz. 1999) *(Gila III); cert. denied* 120 Sup. Ct. 2705 (2000) (Pollack, 2003).

Summary of Key Federal Water Laws

The Clean Water Act (CWA) 33 U.S.C. Section 121 et seq. (1977)

The CWA of 1977 is an amendment to the Federal Water Pollution Control Act of 1972, which set the basic structure for regulating pollutant discharge to waters of the United States. This law gave the Environmental Protection Agency the authority to set effluent standards and continues the requirements to set water quality standards for all surface water contaminants. Under the CWA, it is unlawful to discharge any pollutant from a point source into navigable waters unless a National Pollutant Discharge Elimination Standard (NPDES) permit is obtained. The CWA provides a mechanism for EPA to delegate many of the permitting, administrative and enforcement aspects of the law to states (e.g. Arizona Department of Environmental Quality) while retaining oversight responsibilities (www.cyber-sierra.com/area9). NPDES permits are usually required for effluent or industrial wastewater being disposed of by discharge to waters of the state.

Impaired Waters

Section 303(d) of the Clean Water Act establishes a process for states to identify waters where implementing technology-based controls are inadequate to achieve water quality standards. States establish a priority ranking of these waters and, for the priority waters, develop total maximum daily loads (TMDLs). A TMDL identifies the amount of a specific pollutant or property of a pollutant, from point, nonpoint, and natural background sources, that may be discharged to a water body and still ensure that the water body attains water quality standards.
http://cfpubl.epa.gov/npdes/wqbasedpermitting/iwaters.cfm.

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA or Superfund) 42 U.S.C. Section 9601 et seq. (1980)

CERCLA, commonly referred to as the "Superfund" Program authorized the investigation and remediation of groundwater contaminated by releases of hazardous substances from waste sites and due to accidents, spills and other emergency releases of contaminants. EPA is required to annually update the National Priority List of Superfund sites. In Arizona, CERCLA establishes a comprehensive response program that is administered by ADEQ in cooperation with the EPA. The Department of Water Resources maintains an advisory role in this process (ADWR, 1999).

The Endangered Species Act (ESA). 7 U.S.C. 136; 16 U.S.C. 460 et seq. (1973)

The ESA provides a program for the conservation of threatened and endangered plants and animals and their habitats. This may involve aquatic and riparian habitat. All species of plants and animals, except pest insects, are eligible for listing as threatened or endangered. The Act is administered by the U.S. Fish and Wildlife Service and the National Oceanic and Atmospheric Administration -Fisheries for marine species. Species are protected through partnerships with the states and section 6 of the ESA encourages each State to develop and maintain conservation programs for resident listed species. Section 9 of the ESA makes it unlawful for a person to "take" a listed species which includes significant habitat modification or degradation. The ultimate goal of the law is to recover species so that they no longer need protection under the ESA (USFWS, 2005).

The Safe Drinking Water Act (SDWA). 43 U.S.C. Section 300f et seq. (1974)

The SDWA is the primary federal law regulating drinking water quality from all sources. The Act authorizes EPA to establish safe standards and requires all owners or operators of public water systems to comply with primary (health-related) maximum contaminant level standards. National secondary drinking water regulations set non-enforceable standards for the aesthetic quality of water such as taste, odor or color. ADEQ may adopt more stringent standards than those set by EPA.

Arsenic

In 2001, EPA lowered the allowable arsenic content in drinking water from 50 parts per billion to 10 ppb, effective January 23, 2006. This was a major issue for many of Arizona's communities because Arizona's soil has naturally high levels of arsenic. Approximately one-third of the states drinking water systems exceeded the standard at the time, including 287 small systems (serving fewer than 10,000 people). In response, ADEQ developed a strategy in conjunction with a coalition of business, academia, municipal government agencies and the scientific community to develop a compliance strategy called the Arsenic Master Plan. The plan is intended to identify effective low-cost methods to comply with the standard. www.azdeq/gov/environ/water/dw/arsenic.html.